A. 3

[*From Biometrika, Vol. VI. No. 1. March*, 1908.]

[*All Rights reserved.*]

VIII. Addendum to Memoir: "Split-Hand and Split-Foot Deformities."

Biometrika, Vol. VI. pp. 26—58.

Since the final proof sheets of the above paper were sent to press, several papers have appeared to which reference is necessary.

The evidence of the Bateson School to show that Mendelism is applicable to deformities in man was criticised in the memoir. At that time stress had been laid on three family trees, that of Farabee, an instance of hypophalangia, and those of Nettleship, instances of congenital cataract. The tendency for the deformity to abate in successive generations was noted, for in these families the last generation in each is the only one which shows the undeformed out-numbering the deformed. The criticism was justified in that the three families had been repeatedly made use of to support the view criticised. Another family of "brachydactyly" is now instanced by Punnett (*Proc. Roy. Soc. of Med.* Feb. 28, 1908), who states that "no member of a brachydactylous family who is free from the defect can transmit it to his or her offspring." For certain families this conclusion might be justified from a consideration of the facts, and apart from the question of Mendelism. But that it is of general applicability is disproved by the family recorded by Hasselwander (*Zeitschr. f. Morph. u. Anthrop.* Bd. 6, 1903, S. 510—526), in which such transmission actually occurs. Drinkwater in the article referred to by Punnett (*Proc. Roy. Soc. Edin.* Vol. 28, 1908, p. 38), states, that of 75 descendants of abnormal parents in the family he records, 39 were abnormal, "a result corresponding with what we should expect from Mendel's law." The statement is misleading, for it implies that 36 of the offspring were normal. As a matter of fact four of these were uncertain, and there is as much reason to consider the ratio 43 to 32, as 39 to 36. The mean, 41 to 34, is the fairest expression of the ratio, and it shows the hyperdominance of the deformed, common to so many malformations.

In regard to the possibility of stability of a deformity, the Nettleship family is of interest (*Ophthalm. Soc. Trans.* Vol. 27, p. 269), in that "night-blindness" has been traced through nine generations and shows no marked tendency to abate. A single instance of this character, though suggestive, does not constitute proof; and in any case the conclusion could be applied solely to "night-blindness."

The point which requires emphasis is that a statement to the effect that a family of brachydactyly is an example of Mendelian heredity (Punnett, *loc. cit.*), or the inclusion of that deformity in lists which purport to show examples of instances in which Mendelism has been witnessed (Bateson, *Progress. Rei Botan.* 1906), is not justified by present evidence*. It may be, and very probably is, the case, that Mendelism applies to certain hereditary human deformities; but the conclusions which are being drawn, or implied, conclusions having a serious sociological aspect, are at present ahead of the facts at our disposal.

THOMAS LEWIS.

* Those interested should refer to Joachimsthal (*Virch. Archiv*, 1898, Bd. 6, S. 429). It is obvious from his paper that so-called hypophalangia or brachydactylia is a by no means simple malformation, and is possibly not an entity at all. The number of digits affected and the grade of affection is open to wide variation. There is an instance in the paper (Fall 1), of a symmetrical affection of two fingers, transmitted through a normal individual. Ammon (*loc. cit.* S. 96), quotes the Kellie family, in which hypophalangia is said to have passed through ten generations, and shown sex limitation in transmission.

WELLCOME INSTITUTE LIBRARY
Coll. welMOmec
Coll. pam
No. WE 800
1908
L679

22500892521